REMARKS/ARGUMENTS

Claims 16-32 are pending in the present application. Claims 16-19, 21-23, 25-26, 30, and 32 have been rejected under 35 U.S.C. §102(e) as being anticipated by US Patent 6,263,487 to Stripf et al. (hereinafter "Stripf"). Additionally, Claim 20 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Stripf in view of US patent 5,485,620 to Sadre et al. (hereinafter "Sadre"). Further, Claims 24, 27-29, and 31 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Stripf. Applicants respectfully traverse the rejections.

I. General Overview

The present application is the result of an inventive insight that fundamentally changes the paradigm according to which industrial machines and devices are controlled. Under the traditional paradigm, the device capability of individual controllers was programmed to perform specific technological functions. Pursuant to the present inventors' insight, device functionality and technological functionality have been separated, thereby allowing users to control technological functions without regard for the underlying functionality of the controlling devices. The principal (though not exclusive) tool through which the inventors have embodied their insight is the technology object.

The primary characteristic of technology objects is that they embody technological functions that preferably represent real world components. App. at para. 10. Further, technology objects are instances of technology object types. As implemented in the preferred embodiment, technology object types provide technological functionality that is added to a controller. Additionally, they usually relate to real world component types such as cams, external sensors, probes, etc. App. at para. 54. Further, technology object types may be added to controllers in groups ("technology packages") that represent related technological functionality.

A technology object is a specific instance of a technology object type. Instantiated technology objects are configured and parameterized to represent a specific technological function. *See* App. at paras. 35-39 and Fig. 3. Preferably, the technological function embodied in the technology object represents a real world component or subcomponent, although a

technology object can represent a virtual component. The technology objects implemented in the preferred embodiment are comprised of a technology object type designator, a name (TO identifier), configuration data, system data, commands, and alarms. The configuration data sets the basic mode or functionality of a technology object to correspond to the specific functionality of a component and the TO identifier provides a name to uniquely identify that component. The functionality of the technology object as set by the system data is embodied in the commands and alarms while the state of a technology object at any given time is embodied in its system data.

The primary reference, U.S. Patent Application 6,263,487 (the "Stripf" reference), cited by the examiner to reject the claims of the present invention does not disclose the separation of technological functionality from device functionality nor does it disclose technology objects. As pointed out by the Examiner, Stripf discloses loading "software function blocks" into a run time system of a controller (Stripf at Col. 2, lines 16-26) and it discloses that said software function blocks should be written using an object oriented programming language. However, the disclosed software function blocks are not technology objects, but instead are software code (i.e. a set of instructions written in a programming language) that is comprised of instructions tailored to control the device functionality of individual controllers. Additionally, Stripf does not teach that software function blocks represent technology functions, nor does it teach that software function blocks are instantiations of technology object types. To the contrary, Stripf teaches that the software function blocks are software code that is directly translated into machine code which controls the device functionality of the controller. Stripf at Col. 2, lines 51-57.

II. Rejection Under 35 U.S.C. § 102(e)

Claims 16-19, 21-23, 25-26, 30, and 32 have been rejected under 35 U.S.C. §102(e) as being anticipated by US Patent 6,263,487 to Stripf et al. (hereinafter Stripf). Applicants respectfully submit that these rejections are traversed on the basis of the following arguments.

i. Claims 16-26

Claim 16 is directed to an industrial controller. It includes the limitation "the component control means implemented using a plurality of technology objects corresponding to the components." However, Stripf does not disclose the use of technology objects that correspond to

components. As discussed above, the software function blocks disclosed in Stripf are not technology objects, since they do not represent technological functions and since they are not instances of technology object types. Additionally, Stripf does not disclose that its software function blocks correspond to components. Accordingly, Claim 16 and those claims that depend from claim 16, Claims 17-26, contain a claim limitation that is not taught or suggested by Stripf or any other prior art reference. For at least this reason, Claims 17-26 should be allowed.

ii. Claims 30 and 31

Claim 30 is directed to a method for programming an industrial controller. It includes the steps "selecting a plurality of technology objects relevant to a desired application" and "interleaving the selected technology objects to form technology objects having complex functionality." As discussed above, Stripf does not disclose technology objects. The contact plan, function plan, and instruction list cited by the Examiner (Stripf, col. 2, lines 47-51) are not a plurality of technology objects, but are components of a single program used to control the device functionality of the controller. Additionally, the Examiner cites a passage which explains that the main program operating in the controller is comprised of multiple software function blocks. (Stripf Col. 2, lines 9-13). However, the combining of distinct function blocks to comprise a control program for controlling a controller's processor does not teach or suggest the interleaving of technology objects that represent technological functions. Accordingly, Claim 30 and the claim that depends from Claim 30, Claim 31, contain claim limitations that are not taught or suggested by Stripf or any other prior art reference. For at least this reason, Claims 30-31 should be allowed.

ii. Claim 32

Claim 32 is directed to a system for programming an industrial controller. It includes the limitation "means for selecting a plurality of technology objects relevant to the desired application." However, as explained above, Stripf does not teach or suggest the use or selection of technology objects. The selection of program components (Stripf Col. 2, lines 47-51), which do not correspond to technological functions, to form a program does not suggest the selection technology objects. Accordingly, Claim 32 contains claim limitations that are not taught by Stripf or any other prior art reference. For at least this reason, Claim 32 should be allowed.

IV. Rejections Under 35 U.S.C. § 103(a)

Claim 20 has been rejected under 35 U.S.C. §103(a) as unpatentable over Stripf in view of US Patent 5,485,620 to Sadre et al. (hereinafter Sadre). Additionally, Claims 20, 24, 27-29, and 31 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Stripf. Applicants respectfully submit that these rejections are traversed on the basis of the following arguments.

A rejection under 35 U.S.C. § 103(a) requires the establishment of a *prima facie* case that the claimed subject matter, including all claim elements, would have been obvious to a person having ordinary skill in the art on the basis of either a single prior art reference or more than one reference properly combined. As no such *prima facie* case has been established for these claims, Applicants respectfully traverse these rejections, as set forth more fully in the discussion that follows.

i. Claim 20

Claim 20 depends directly from claim 16 and it should be allowable on the same grounds, since neither Stripf nor Sadre teach or suggest the claim limitation "the component control means implemented using a plurality of technology objects corresponding to the components."

Furthermore, claim 20 is directed to technology objects that are distributable "among control units in equidistant communications with one another in real time with clock synchronization." The examiner argues that this claim element is taught by Sadre. Sadre discloses the synchronization of control units for work stations. However, the synchronization of controllers (device functionality) does not teach or suggest the synchronization of technology objects, which represent technological functionality. Accordingly, Claim 20 contains claim limitations that are neither taught or suggested by Stripf or Sadre. For at least this reason, Claim 20 should be allowed.

ii. Claims 24, 27-29, and 31

As explained above, Claims 24 depends directly from independent claim 16 and it should be allowable on the same grounds, since Stripf does not teach or suggest the claim limitation "the

component control means implemented using a plurality of technology objects corresponding to the components." Furthermore, claim 24 is directed to feedback-free programming of a technology object with respect to the other technology objects and control means. However, Stripf cannot suggest feedback free programming of a technology object, since Stripf does not disclose the existence of an object whose technological functionality is separated from the device functionality. Accordingly, the functional blocks disclosed in Stripf may not be free of feedback arising from the inherent device capabilities.

Claims 27-29 are methods of programming an industrial controller and each contains the step "interleaving the technology objects to form a set of complex technology objects." As discussed above, Stripf does not disclose technology objects. The contact plan, function plan, and instruction list cited by the Examiner are not a plurality of technology objects, but are components of a single program used to control the device functionality of the controller. Additionally, the Examiner cites a passage which explains that the main program operating in the controller is comprised of multiple software function blocks. (Stripf Col. 2, lines 9-13). However, the combining of distinct function blocks to comprise a control program for controlling a controller's processor does not teach or suggest the interleaving of technology objects that represent technological functions. Accordingly, Claims 27-29 contain claim limitations that are not taught by Stripf or any other prior art reference. For at least this reason, Claims 27-29 should be allowed.
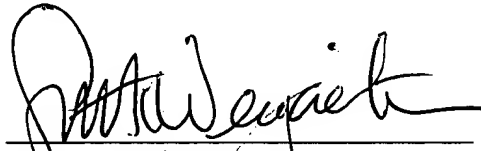
Applicants respectfully submit that no prima facie case of obviousness has been made out and submit that the claim is allowable over the art of record.

CONCLUSION

Applicants submit that claims 16-32, for the reasons set forth above, are in condition for allowance. Reconsideration and allowance are therefore respectfully requested. The Commissioner is authorized to charge the fee for the extension of time, as well as an additional required fee to Deposit Account No. 23-1703.

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Respectfully submitted,

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